



INDEPENDENT OPERATIONAL TEST AND EVALUATION



IOT&E

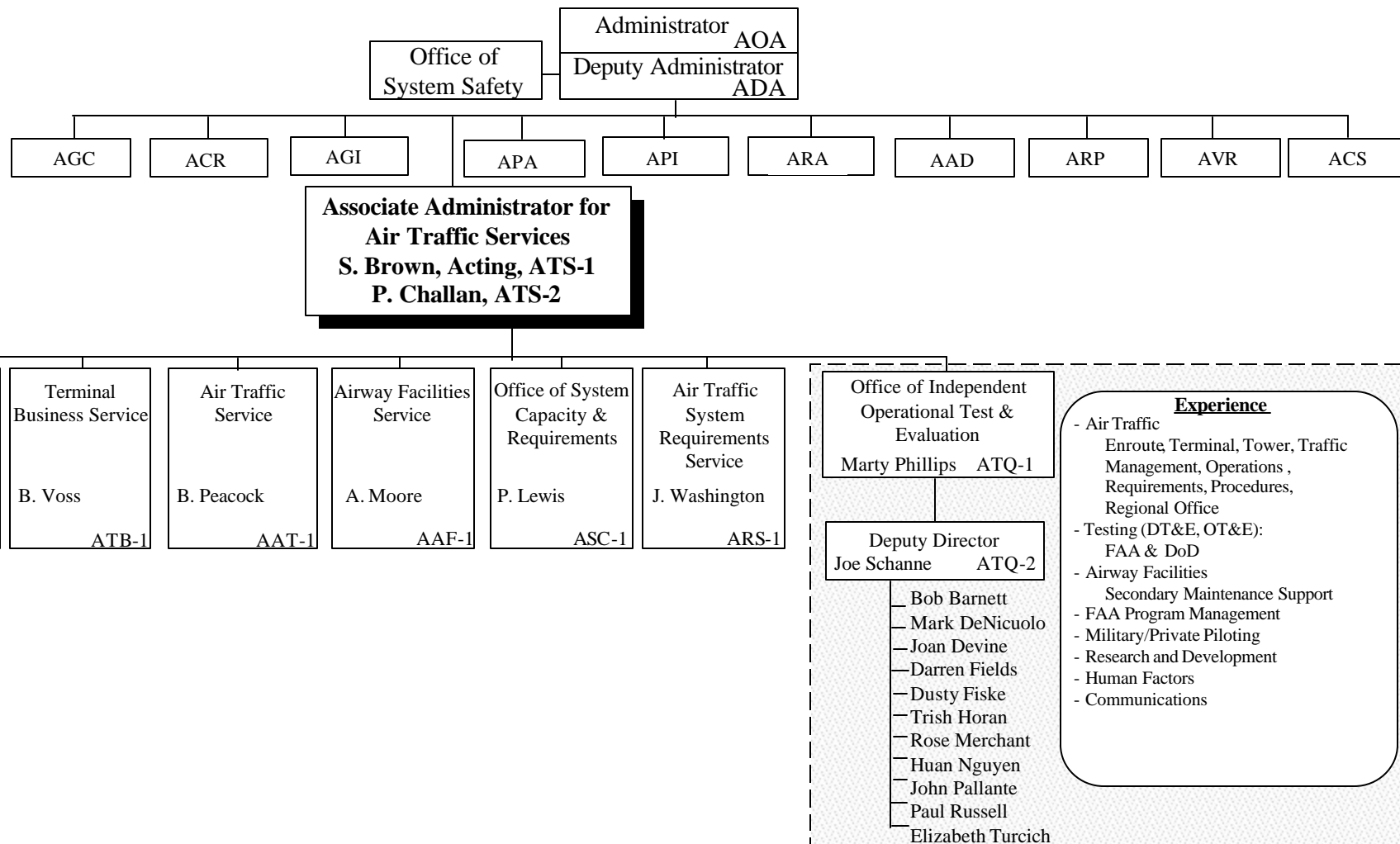


Briefing Contents

- ✈ IOT&E Overview**
- ✈ IOT&E Process**
- ✈ IOT&E Relationship with PTs/IPTs/Business Services**
- ✈ IOT&E Designation Process**



FEDERAL AVIATION ADMINISTRATION





IOT&E Overview

- ✈ **IOT&E is an Operational Evaluation of a new system by the user (AT & AF) in the operational environment. IOT&E assessments are made by ATS Test Teams that:**
 - ☎ *Plan, conduct, and report on the operational evaluation*
 - ☎ *Are independent of the acquisition organization*
 - ☎ *Interact with Product Teams early in the program to identify potential operational risks*
- ✈ **IOT&E Assessments are delivered directly to ATS-1 and are used in support of In-Service Decisions.**
- ✈ **ATQ is the ATS Test Team Lead and facilitates the operational evaluation made by the operational ATS Test Team members.**

“Is the system ready for the field, and is the field ready for the system?”



IOT&E Characteristics

- ✧ **Scope of IOT&E is based on operational requirements which are defined by users in the Requirements Document (RD).**
- ✧ **Strategy is reflected in the T&E Section of each program's ASP/IPP.**
- ✧ **ATS Test Team includes:**
 - ☎ ***ATQ (Test Team Lead)***
 - ☎ ***AT (Field, HQ, NATCA, & NAATS)***
 - ☎ ***AF (Field, HQ, AOS, & PASS)***
 - ☎ ***Others (NWS, DoD)***
- ✧ **Prior to the conduct of IOT&E, ATQ/ATS Test Team monitors System Test Activities.**
 - ☎ ***Allows early identification of operational issues***
 - ☎ ***Provides mechanism for System Test results to be used in IOT&E Assessment***
- ✧ **IOT&E is typically 2-4 weeks, includes time when system is being used operationally (i.e., post-IOC). Length is defined by ATS.**



IOT&E Relationship to Corporate Level Decisions

	IOTRD	ISD
System Test	IOT&E (Designated Pgms)	Field Familiarization

✈ **IOT&E Readiness Declaration (IOTRD):**

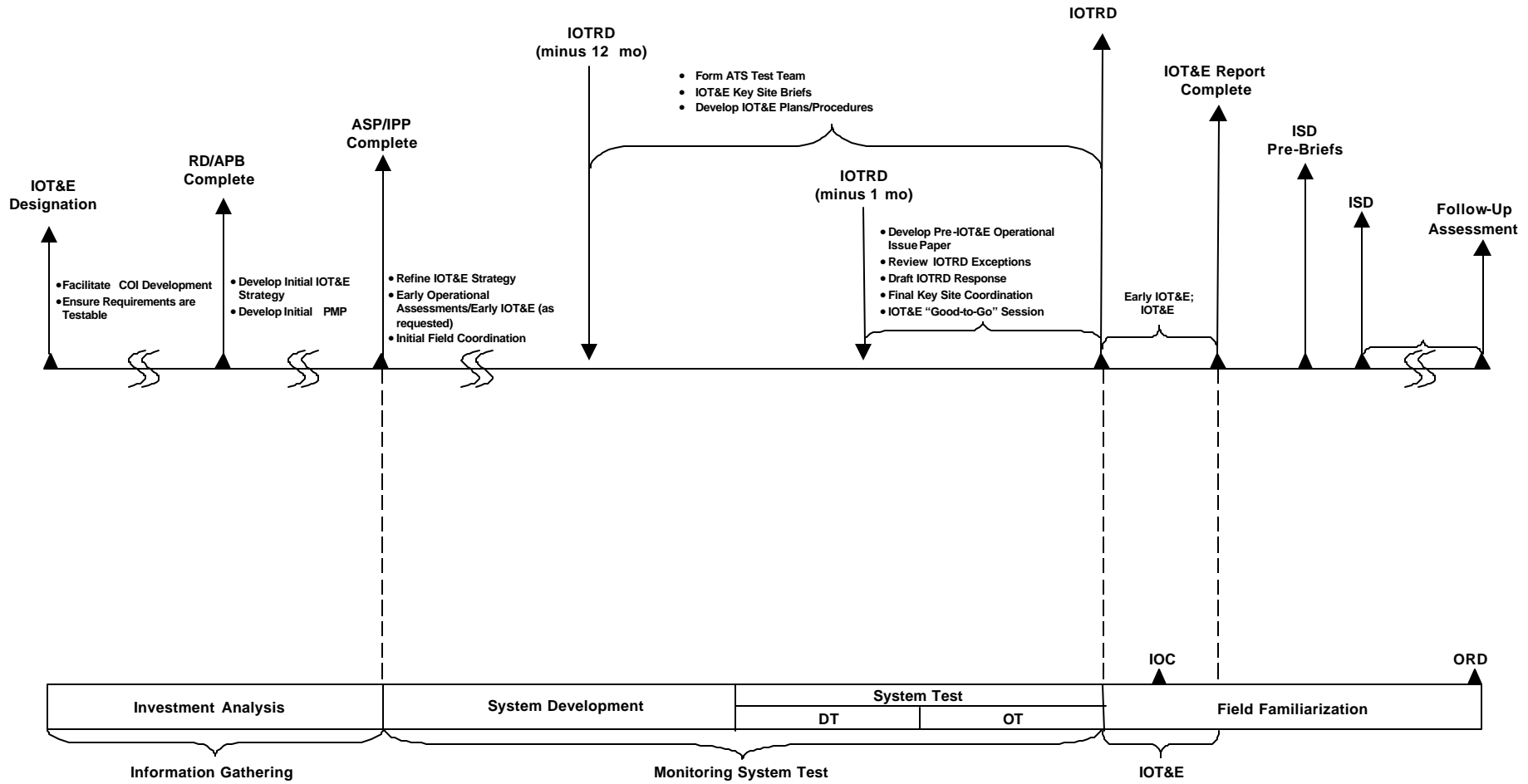
- ☎ *Written declaration by ARA-1, AOZ-1, or ATB-1 to ATS-1 of system's readiness to enter IOT&E.*
- ☎ *Includes "exceptions" to the readiness for IOT&E*
- ☎ *If ATS-1 concurs, IOT&E commences (Concurrence by ATS-1 doesn't mean acceptance of "exceptions" for deployment)*

✈ **In-Service Decision (ISD):**

- ☎ *ATS Test Team provides final evaluation of operational acceptability by operators/users prior to deployment*
- ☎ *Report is provided directly to ATS-1 and ISD authority*



IOT&E Generic Timeline





IOT&E Report

- ✈ **Provides ATS-1, the In-Service Decision Authority, and the ATS Management Team with data from the evaluation and the ATS Test Team assessment/recommendations.**
- ✈ **Result briefings:**
 - ☎ ***Customer Information Brief (ATP/AAT, ANS, ANI, AOP, AOS, ARS, and the National Union POCs)***
 - ☎ ***Region/Facility Manager Telcon***
 - ☎ ***Product Team Brief***
 - ☎ ***ATS Management Team (ARA-1 and AUA-1 or AND-1 invited)***
 - ☎ ***ATS-1, ATS-2, and ARA-1 (sometimes combined with ATS Management Team Brief)***
 - ☎ ***In-Service Decision (ISD)***
- ✈ **ATS Test Team members participate in briefings.**



IOT&E Relationship with PTs/Business Services (BS)

✧ **ATQ is a non-voting extended member of PT/BS.**

☎ *ATQ is provided Core Team information, access, and documentation*

✧ **ATS Test Team proactively interacts with PT/BS throughout program.**

☎ *Early in the program, work with AT, AF, and ARS to facilitate development of COIs and to ensure that operational requirements are testable*

☎ *Early operational risk identification*

☎ *Monitoring of PT/BS System Test activities*

☎ *No surprises; concerns expressed up front to the PT/BS*

✧ **Resources required for IOT&E are documented in the IPP.**

☎ *PT/BS required to provide:*

- Test article in an operational environment
- Representative training, logistics support, etc.
- Schedule allocation



Role of IOT&E with TBS & PBO

The IOT&E function:

- ✈ is independent of the Terminal Business Service and will be independent of other domain Business Services that are established.
- ✈ should remain closely linked to our primary customers: Air Traffic (AT) and Airway Facilities (AF)
- ✈ will continue to provide independent operational assessments of new NAS systems in support of corporate-level decisions.

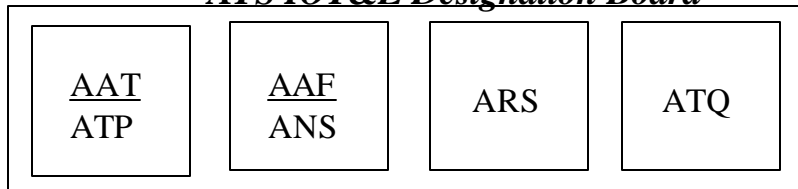
Bottom Line: Value of IOT&E increases as acquisition/life cycle functions consolidate under domain Business Units.



IOT&E Designation Process

WHO?:

ATS IOT&E Designation Board



**Recommendation
to ATS-1**

External Input (ARA, AOZ, AVR, Agency Level, NTSB, etc.)

WHAT?:

FUNCTIONS :

Recommends programs for IOT&E Designation

Ensures ATS resource commitment to support designated programs

Recommends ISD authority for specific programs

WHEN?: *Designation Can Be Addressed At Any Time During Program Life-Cycle*

Program
Initiation

Product
Development

System Test

Production/Deployment
Decisions

P³I



Programs Designated for IOT&E

- ✧ **Advanced Technologies and Oceanic Procedures (ATOP)**
- ✧ **Airport Movement Area Safety System (AMASS)**
- ✧ **Airport Surface Detection Equipment (ASDE-X)**
- ✧ **Airport Surveillance Radar Model 11 (ASR-11)**
- ✧ **Automated Flight Service Station Voice Switch (AFSSVS)**
- ✧ **Capstone**
- ✧ **Center TRACON Automation System (CTAS)/Traffic Management Advisor (TMA)**
- ✧ **Controller Pilot Data Link Communications (CPDLC)**
- ✧ **Direct Access Radar Channel (DARC) Phase 2 and 3**
- ✧ **En Route Automation Modernization (ERAM)**
- ✧ **En Route Communication Gateway (ECG)**
- ✧ **Host Oceanic Computer System Replacement (HOCSR) Phase 2 Oceanic**
- ✧ **Integrated Terminal Weather System (ITWS)**
- ✧ **NAS Infrastructure Management System (NIMS)**
- ✧ **Next Generation Communications (NEXCOM)**
- ✧ **Operational and Supportability Implementation System (OASIS)**
- ✧ **Standard Terminal Automation Replacement System (STARS)**
- ✧ **Tower Data Link Services (TDLS)**
- ✧ **User Request Evaluation Tool (URET)**
- ✧ **Weather and Radar Processor (WARP)**



IOT&E Activity Complete

- ✈ **Air Route Surveillance Radar (ARSR)-4**
- ✈ **Backup Emergency Communications (BUEC)**
- ✈ **Common Automated Radar Terminal System(ARTS) -ARTS IIE**
- ✈ **Display Channel Computer Replacement (DCCR)**
- ✈ **Display System Replacement (DSR)**
- ✈ **Enhanced Terminal Voice Switch (ETVS)**
- ✈ **Host Interface Device/National Airspace System/Local Area Network (HID/NAS/LAN)**
- ✈ **Host and Oceanic Computer System Replacement (HOCSR) Phase 1 En-Route and Oceanic**
- ✈ **Voice Switching Control System (VSCS)**
- ✈ **VSCS Training and Backup System (VTABS)**
- ✈ **Weather And Radar Processor (WARP) Stage 0**
- ✈ **HOCSR Phase 2 En Route**
- ✈ **Multi-Sector Oceanic Data Link (MS-ODL)**
- ✈ **Standard Terminal Automation Replacement System (STARS) Early Display Configuration (EDC-1)**



Differences Between OT Portion of System Test & IOT&E

System Test (OT)

- ✈ Results reported to PT/BS Lead
- ✈ Schedule controlled by PT/BS Lead
- ✈ Members of PT/BS (Core)
- ✈ Testing at Technical Center/field
- ✈ Planned, conducted, and reported on by ARA
- ✈ Specification/contract driven testing
- ✈ Test/fix/test etc.
- ✈ Testers report results with conclusion/recommendation

IOT&E

- ✈ Results reported to ATS-1 with a copy to the In-Service Decision Authority
- ✈ Duration of IOT&E protected
- ✈ Non-voting extended PT/BS members
- ✈ Assessment in the field
- ✈ Planned, conducted, and reported on by ATS
- ✈ Critical Operational Issue (COI) driven/operational focus
- ✈ IOT&E conducted on declared system baseline (IOTRD)
- ✈ User/operator reports operational assessment
- ✈ Issues incorporated into ISD Action Plan